The Dynamics of Disability: Evidence from a Cohort of Back Pain Patients

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Disabled Workers Receiving SSDI 1996 & 2009

	1996	2009	% Change
Workers on Disability	4,400	7,788	77%
Specific Disease Categories			
Circulatory System	518	684	32%
Mental Disorders*	1,128	2,220	97%
Musculoskeletal	**907**	**2,147**	**137%**

All counts in thousands. Source: *Annual Statistical Report on the Social Security Disability Program, 2009 (published 2010). *Excluding mental impairment.*

A Key Policy Question

- "... are a substantial share of Disability Insurance recipients cheating?"

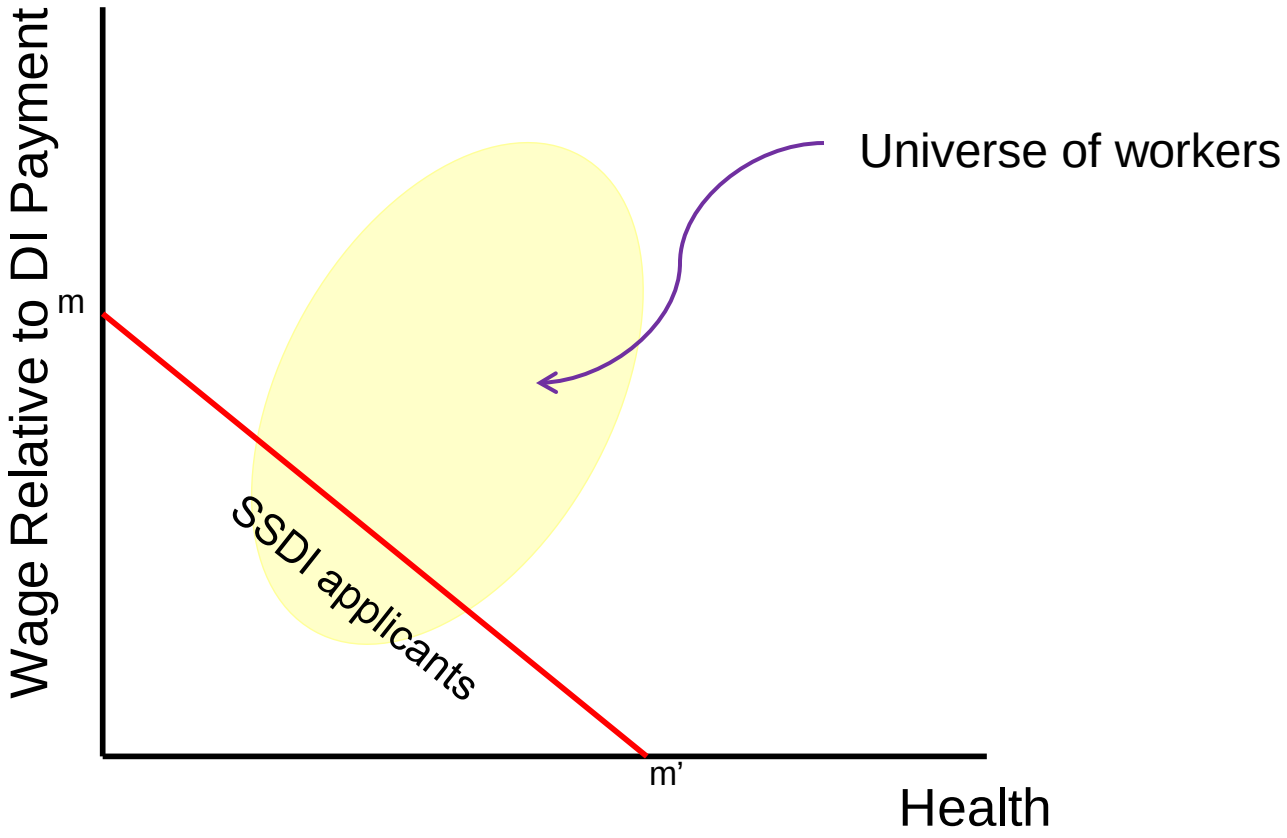
Autor and Duggan, 2006, p. 85

Standard Economist's Model to Explain Application for SSDI

$$D^* = \alpha(\text{Health}) + \beta(\text{Earnings/SSDI Benefits}) + \varepsilon$$

$$D = 1 \text{ (apply for SSDI) if } D^* > C$$

Graphical Analysis showing who applies to SSDI (under the red line)

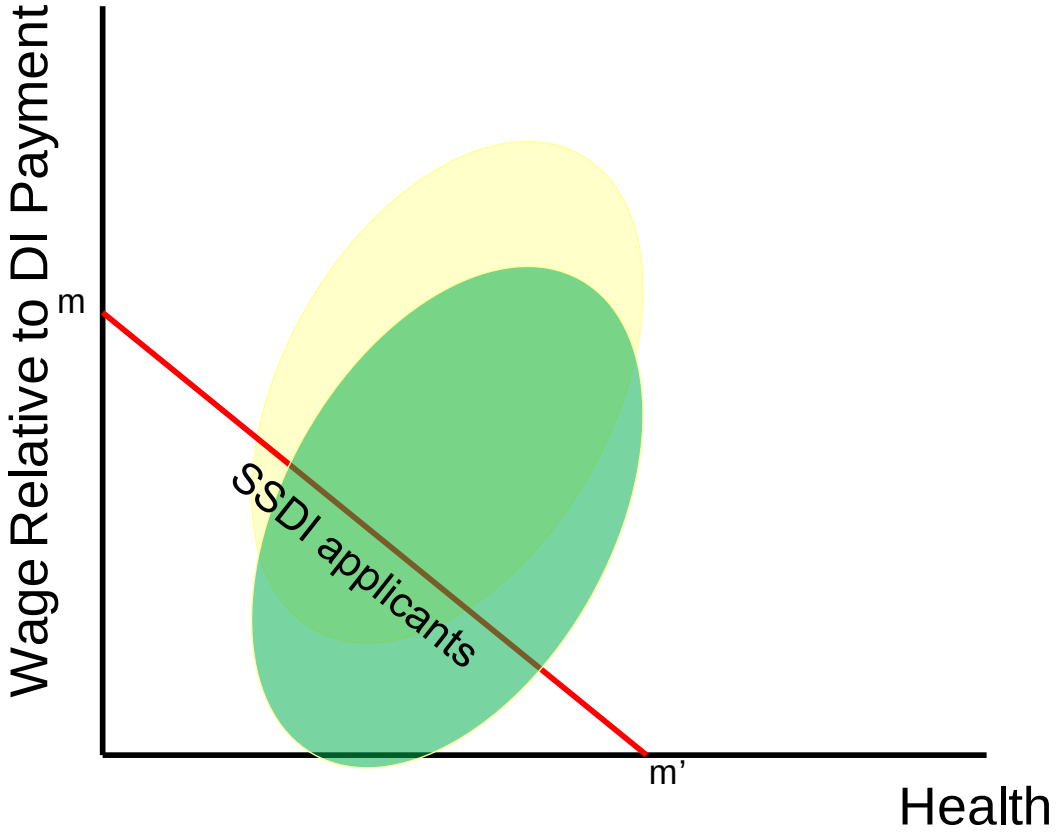


Source: Croda and Skinner, 2010

Implications

Hypothesis	Off-the-shelf model	New model
Higher benefits/lower wages leads to more SSDI applicants	Yes	
Low-wage (or low-education) workers healthier when they apply for SSDI	Yes	

When wages fall and benefits rise, healthier applicants



Implications

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Higher benefits/lower wages leads to more SSDI applicants	Yes	
Low-wage (or low-education) workers healthier when they apply for SSDI	Yes	
Secular growth in SSDI enrollment implies healthier enrollees (a.k.a. “cheaters”)	Yes	

Implications

Hypothesis	Off-the-shelf model	New model
Higher benefits/lower wages leads to more SSDI applicants	Yes	
Low-wage (or low-education) workers healthier when they apply for SSDI	Yes	
Secular growth in SSDI enrollment implies healthier enrollees	Yes	
Strong independent effect of long-term market opportunities *conditional* on health	Yes	

A Different Model

1. For lower educated workers, rapid depreciation of health capital raises *current* wages (Case & Deaton, 2005)

2. SSDI provides a guaranteed payment if health is lousy (e.g., Hubbard, Skinner, Zeldes, 1995)

3. An alternative option available to workers: depreciate health capital through risky work and consumption (smoking, obesity, opioid use). Then apply for SSDI.

The view from the trenches….

- ….the backache is intolerable and disabling because the job is intolerable, unsatisfying, or insecure; the supervisor is insensitive, hostile, or cruel; coworkers are antagonistic; the worker feels undervalued or underpaid; or the worker is overburdened by personal baggage—and sees no way out. “I injured my back” is this semiotic. (Hadler, et al., 2007)

NEUROLOGY

Medical Hypotheses

The

Individual differences in endogenous pain modulation as a risk factor for chronic pain

Robert R. Edwards, PhD

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  cruel, coworkers are antagonistic, the worker feels undervalued or underpaid; or the worker is overburdened by personal baggage—and sees no way out. “I injured my back” is this semiotic. (Hadler, et al., 2007)

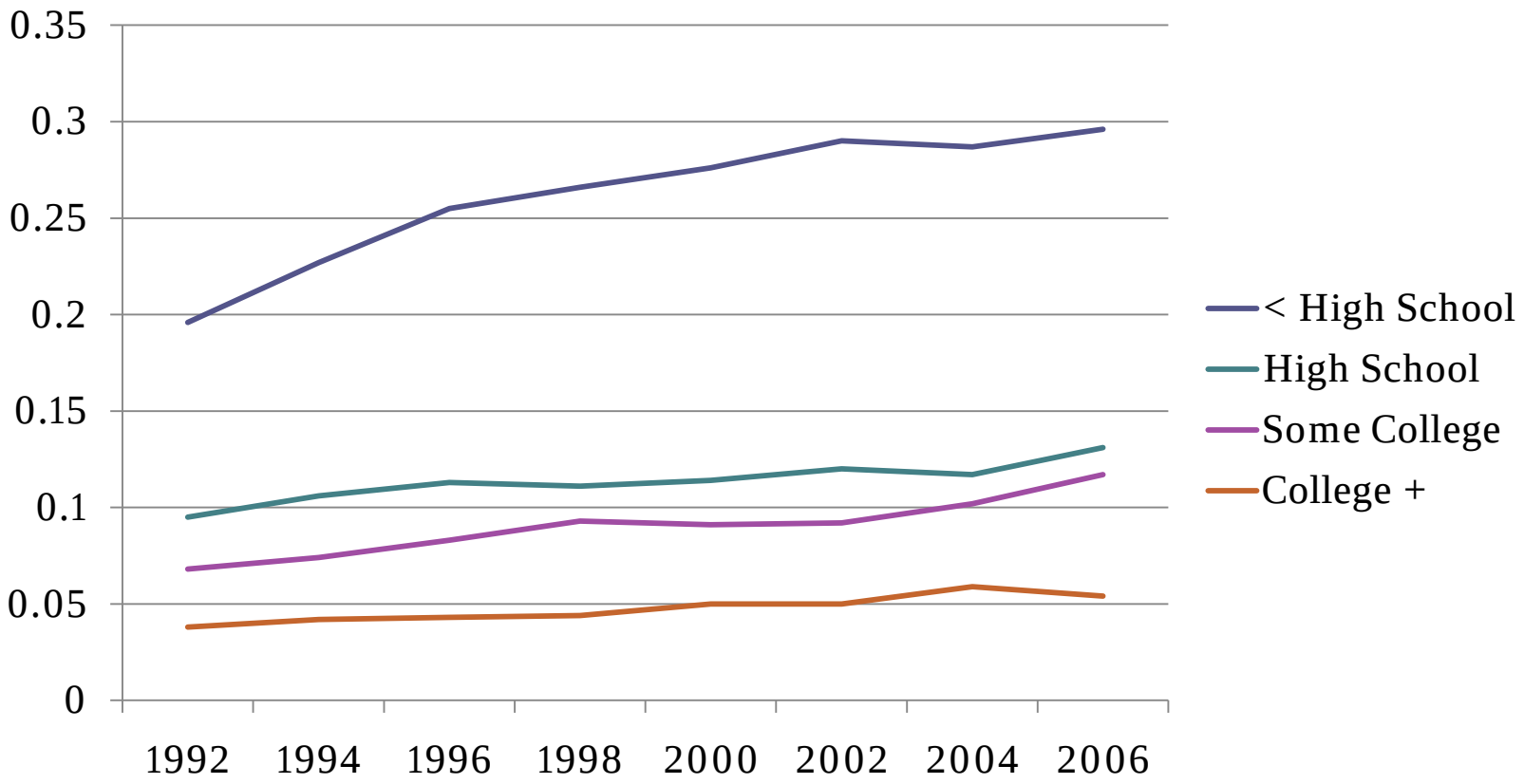
Implications

Hypothesis	Off-the-shelf model	New model
Higher benefits/lower wages leads to more SSDI applicants	Yes	Yes
Low-wage (or low-education) workers healthier when they apply for SSDI	Yes	Maybe
Secular growth in SSDI enrollment implies healthier enrollees	Yes	Maybe
Strong independent effect of long-term market opportunities *conditional* on health	Yes	No

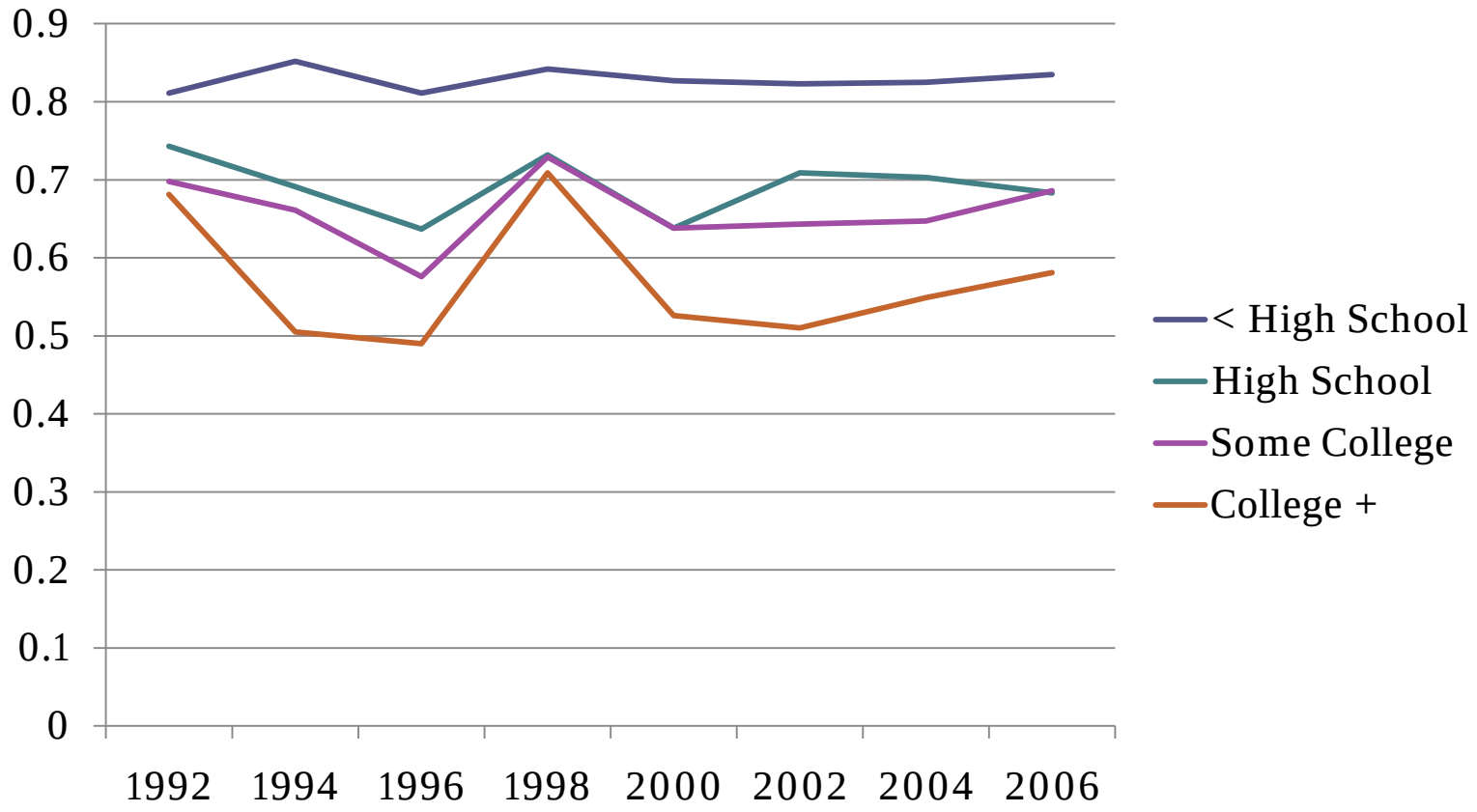
Data (I)

- Health and Retirement Study (1992-2006)
- Education: proxy for market opportunities
- What fraction age 50-64 (by education) has applied for SSDI in the past 10 years?
- What is the average health of those who applied over time?

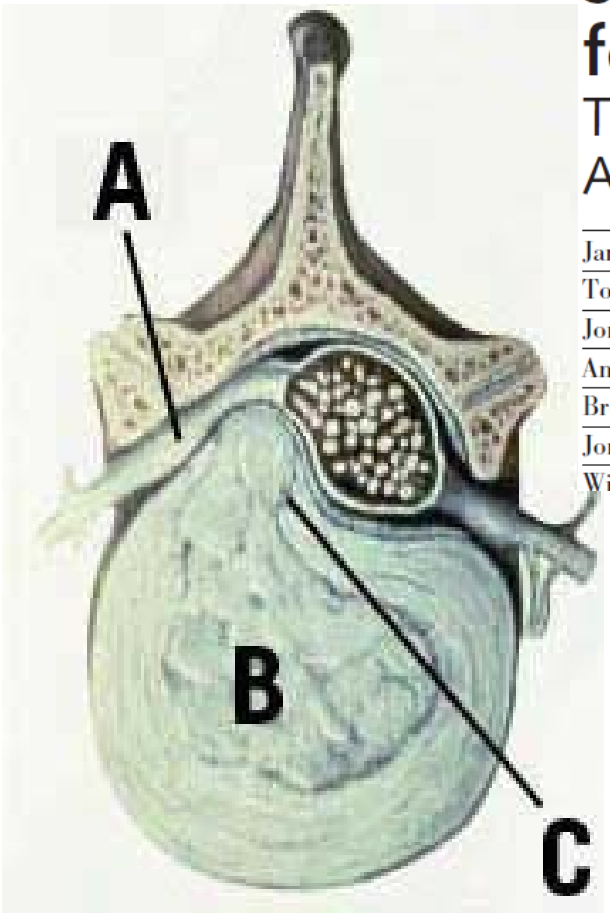
Fraction of Enrollees who Applied for SSDI



Fraction in Fair/Poor Health of Those Who Applied, by Education



Data(II)
The SPORT RCT: Surgery for Disk Herniation



Surgical vs Nonoperative Treatment for Lumbar Disk Herniation

The Spine Patient Outcomes Research Trial (SPORT): A Randomized Trial

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Context Lumbar diskectomy is the most common surgical procedure
back and leg symptoms in US patients, but the efficacy of the proced
nonoperative care remains controversial.

Objective To assess the efficacy of surgery for lumbar intervertebral di

Design, Setting, and Patients The Spine Patient Outcomes Researc
domized clinical trial enrolling patients between March 2000 and Novem
13 multidisciplinary spine clinics in 11 US states. Patients were 501 surgi
(mean age, 42 years; 42% women) with imaging-confirmed lumbar inte

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Summary Statistics

	People who applied for SSDI (N=94)	People who didn't (N =995)
Age	43.4	40.2
Black	.106	.053
Depression	.245	.108
Other joint problem	.187	.160
Stomach problems	.170	.102
Current smoker	.404	.224

The Oswestry Low Back Pain Questionnaire

10 Categories

- Pain intensity
- Personal Care
- Lifting
- Walking
- Sitting
- Standing
- Sleeping
- Sex Life
- Social Life
- Traveling

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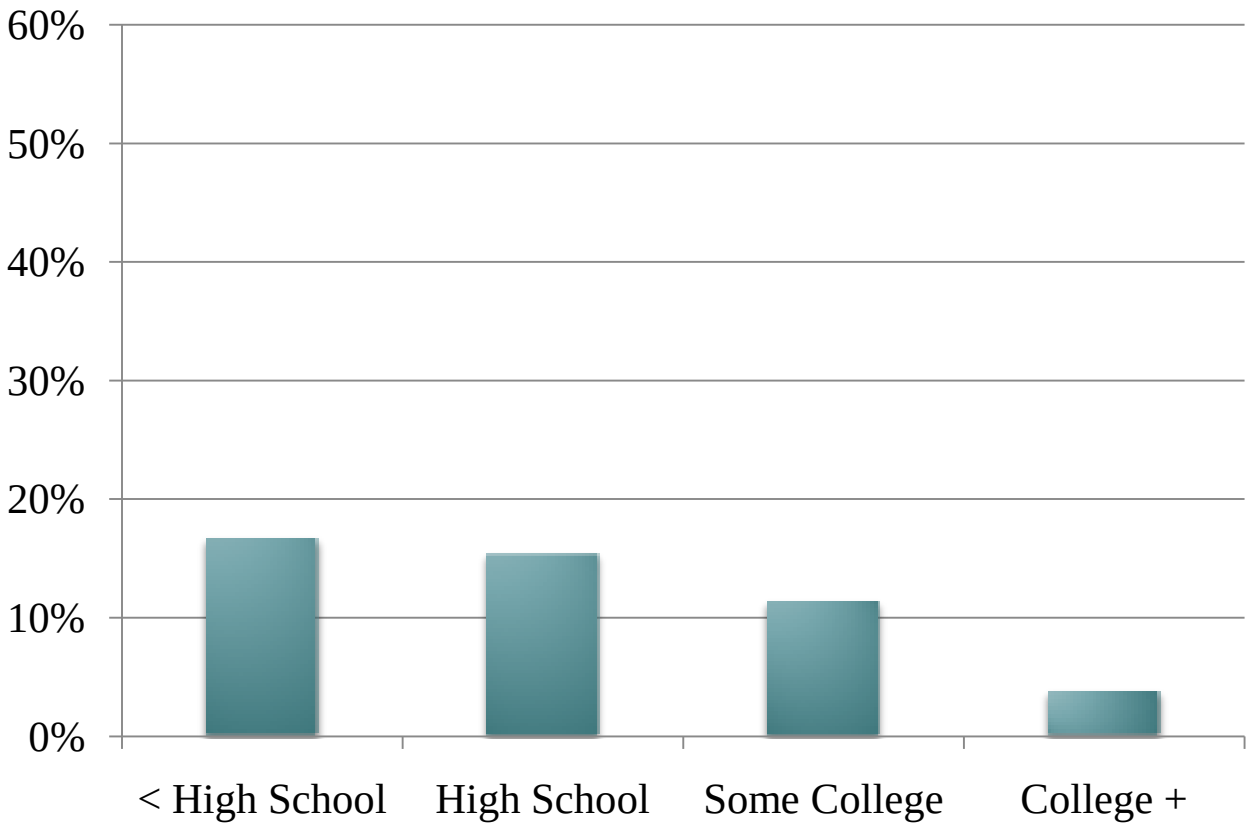
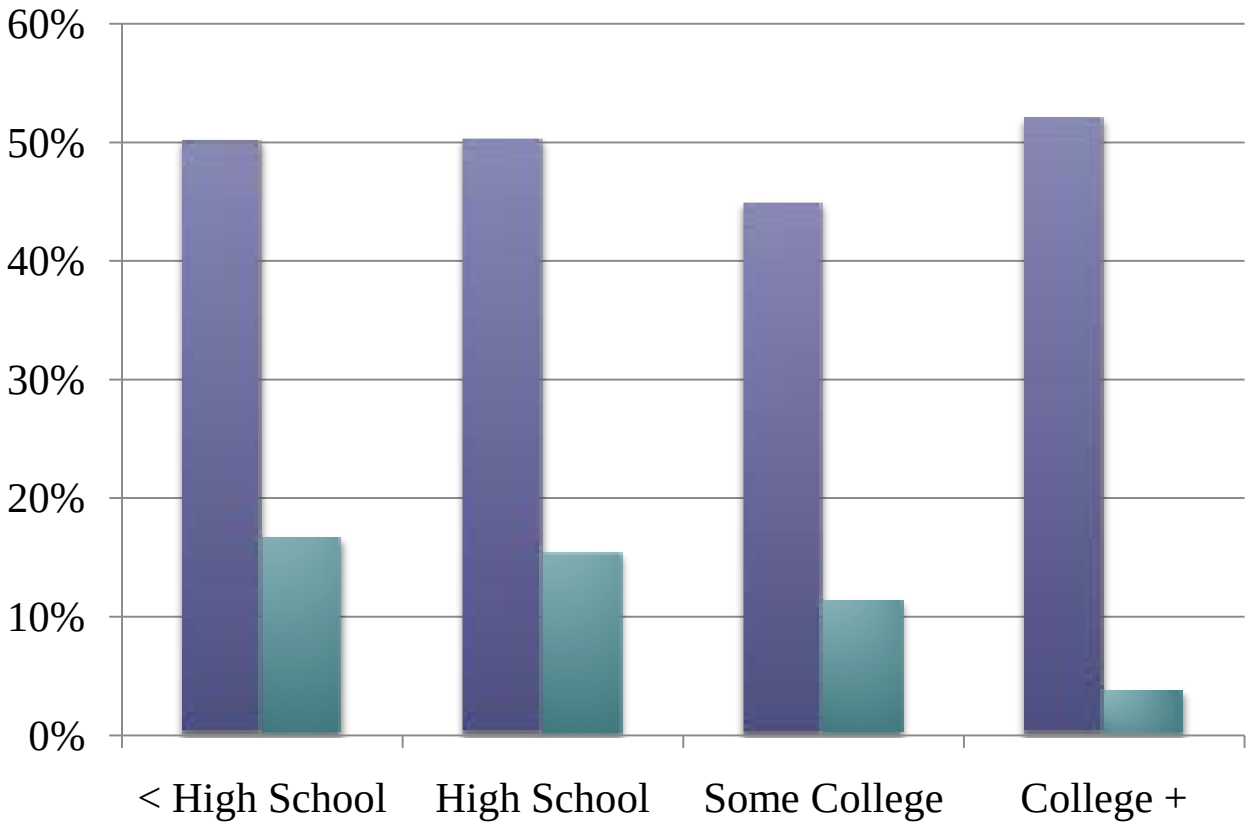
Within "Standing"

- I can stand as long as I want without increased pain.
- I can stand as long as I want but increases my pain.
- Pain prevents me from standing more than 1 hour.
- Pain prevents me from standing more than ½ hour.
- Pain prevents me from standing more than 10 minutes.
- Pain prevents me from standing at all.

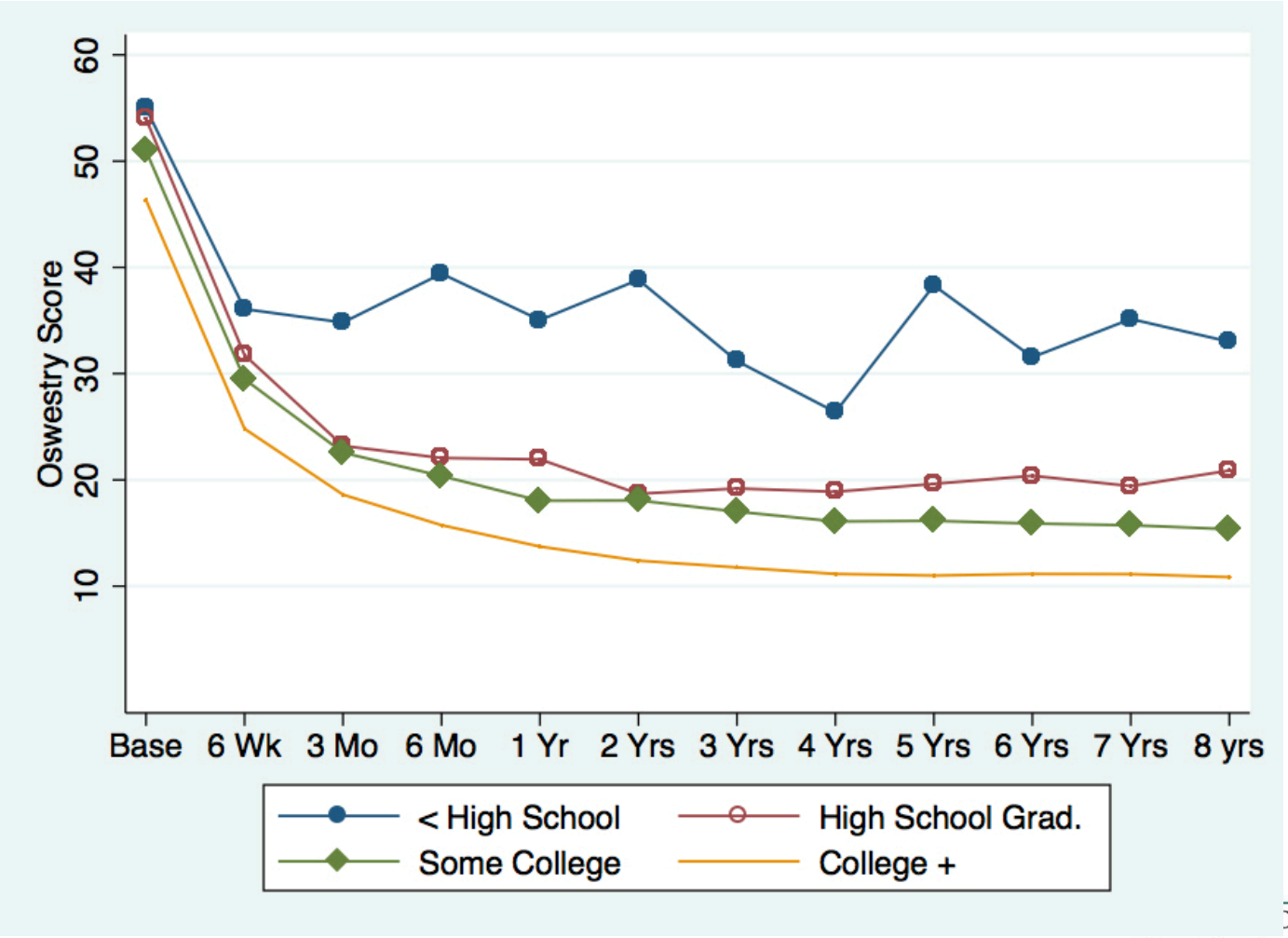
Percentage Who Apply to SSDI, by Education



Percentage Who Apply to SSDI, and Oswestry Score at Application, by Education



Oswestry Score, by Education and Time Post-Baseline



Percentage Who Apply to SSDI, Relative to College Graduates

1. basic = (age & its square), race, Hispanic ethnicity, gender, year of enrollment dummies, & follow-up survey dummies.

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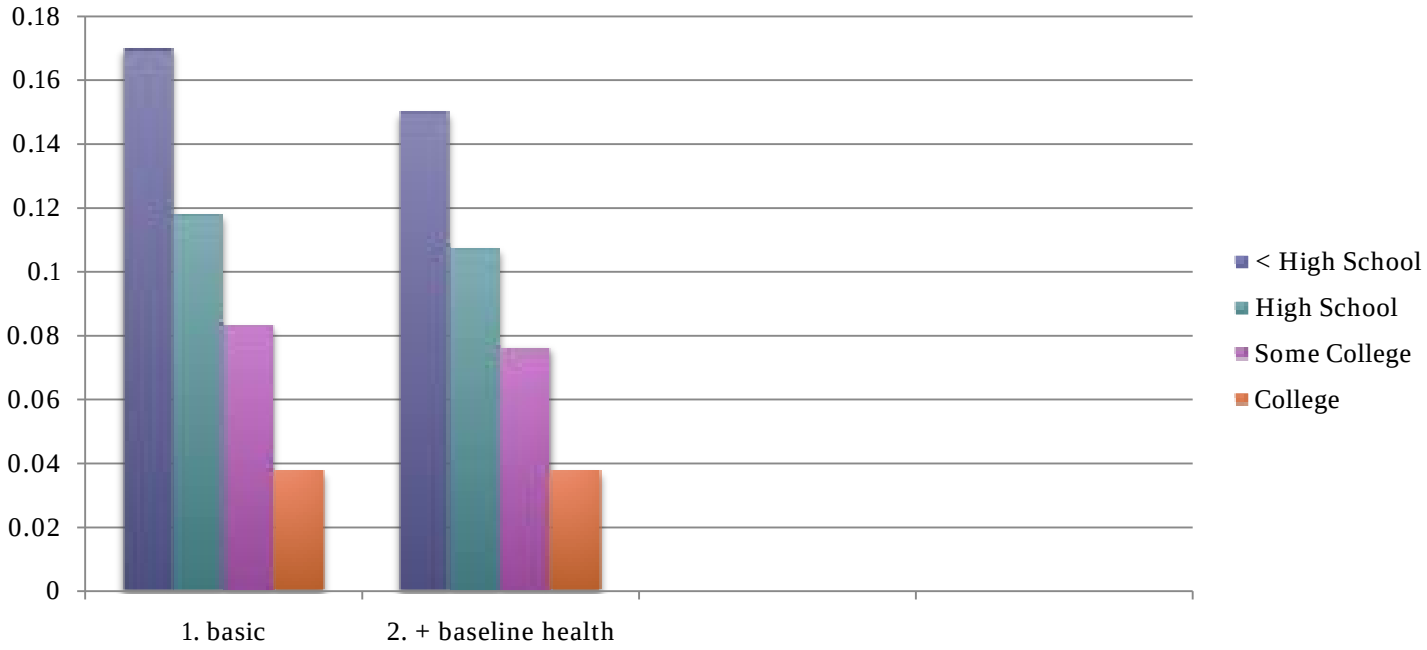

2. Baseline Health = Includes everything in (1) + baseline Oswestry score, SF-36 physical composite score, SF-36 mental score, dummies for baseline presence of hypertension, heart disease, cancer, stroke, depression, other (non-back) joint problems, diabetes, lung disease, and bowel disorder, & whether patient got back surgery.

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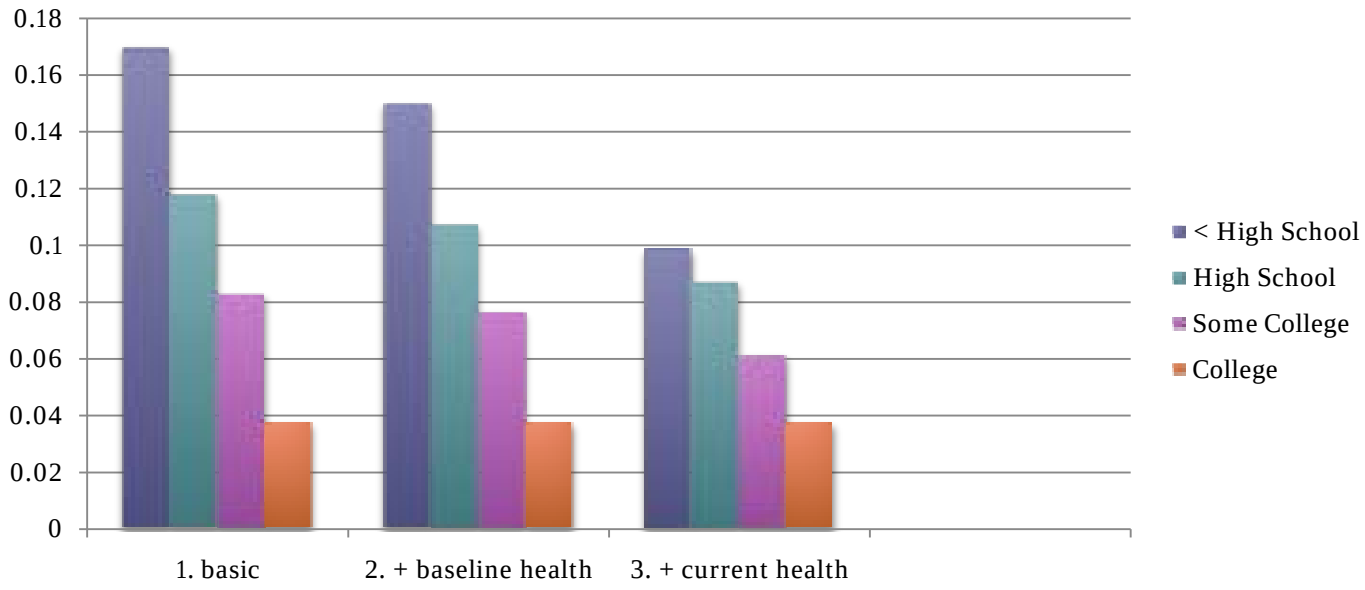

3. Current health = (2) + Oswestry score at follow-up, SF-36 physical score SF-36 mental score, current smoker, obese (BMI>30).

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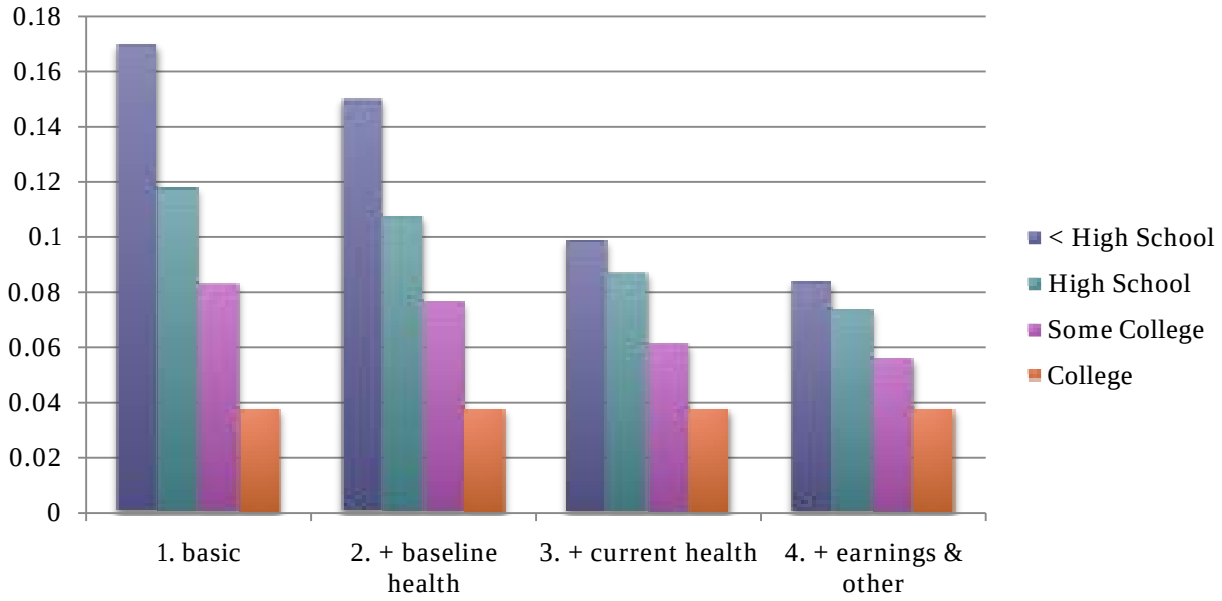

4. Earnings & other = (3) + annual earnings or wages (hourly workers)
6 categories, lifting is very important for job, lifting is somewhat important in job

Scorecard

Hypothesis	Off-the-shelf model	New model
Higher benefits/lower wages leads to more SSDI applicants	Yes	Yes
Low-wage (or low-education) workers healthier when they apply for SSDI	Yes	No
Secular growth in SSDI enrollment implies healthier enrollees	Yes	No
Strong independent effect of long-term market opportunities *conditional* on health	Yes	No

Summing Up

- VERY preliminary results – additional analysis required
- Key objective: to reconcile with other disability facts (e.g., short-term application trends in Song and Manchester, 2011)

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- Further exploration of neurological/psychological issues surrounding pain
- Next step: Provide mice with SSDI, measure pain

Additional Slides

Fraction in Fair/Poor Health of Those Who Did Not Apply, by Education